According to third aspect of the present invention there is provided a reaction container cleaning method including:

flowing NF_3 gas into the reaction container; and

removing, without using plasma, a silicon nitride film formed in the reaction container."

Please replace the section of the specification entitled ABSTRACT on page 20, lines 1-9, with the following text:

"ABSTRACT

A reaction container cleaning method includes flowing NF_3 gas into the reaction container, and removing, without using plasma, a silicon nitride film formed in the reaction container."

IN THE CLAIMS:

Please cancel claim 3 without prejudice.

Please replace the text of claims 1, 2, and 4-9 with the following text:

1. (Amended) A semiconductor device manufacturing method comprising:

a first step of forming, by a thermal chemical vapor deposition method, a silicon nitride film on an object disposed in a reaction container, with bis tertiary butyl amino silane and NH_3 flowing into said reaction container, and

a second step of removing, without using plasma, silicon nitride formed in said reaction container, with NF_3 gas flowing into said reaction container.

2. (Amended) The semiconductor device manufacturing method as recited in claim 1, further comprising said first step after said second step.

4. (Amended) The semiconductor device manufacturing method as recited in claim 1, wherein

before said silicon nitride film formed in said reaction container reaches a thickness of 4,000 Å, said silicon nitride formed in said reaction container is removed, with said NF_3 gas flowing into said reaction container.

5. (Amended) The semiconductor manufacturing method as recited in claim 1, wherein

before said silicon nitride film formed in said reaction container reaches a thickness that generates particles on said object, said silicon nitride formed in said reaction container is removed, with said NF_3 gas flowing into said reaction container.

6. (Amended) The semiconductor device manufacturing method as recited in claim 1, wherein

said reaction container is made of quartz and a member made of quartz is used in said reaction container, and

before said silicon nitride film formed on said quartz is increased to a thickness that generates particles on said object, said NF_3 gas is allowed to flow into said reaction container to remove said silicon nitride formed on said quartz.

7. (Amended) The semiconductor device manufacturing method as recited in claim 6, wherein

said second step is carried out in a state where a pressure in said reaction container is greater than or equal to 10 Torr.

8. (Amended) The semiconductor device manufacturing method as recited in claim 1, further comprising a step of purging said reaction container using said NH_3 gas at least one of before and after said first step.

9. (Amended) A semiconductor manufacturing apparatus comprising:

a reaction container;

a heater provided outside of said reaction container;

an object mounting device to be disposed in said reaction container;

a first gas charging port for charging bis tertiary butyl amino silane into said reaction container; and

a second gas charging port for selectively charging one of NH_3 and NF_3, thereby performing one of

forming a silicon nitride film, by a thermal chemical vapor deposition method, on an object disposed in said reaction container, with bis tertiary butyl amino silane and NH_3 flowing into said reaction container, and

removing silicon nitride formed in said reaction container with NF_3 gas flowing into said reaction container.

Please add new claims 10-21 as follows:

10. (New) A semiconductor device manufacturing method as recited in Claim 1, wherein

every time a thickness of said formed silicon nitride film reaches 3,000 Å, said silicon nitride film formed in said reaction container is removed, with NF_3 gas flowing into said reaction container.

11. (New) The semiconductor device manufacturing method as recited in claim 1, wherein

said reaction container is made of quartz or a member made of quartz is used in said reaction container, and

before said silicon nitride film formed on said quartz is increased to a thickness that generates particles on said object, said NF_3 gas is allowed to flow into said reaction container to remove said silicon nitride formed on said quartz.

12. (New) The semiconductor device manufacturing method as recited in claim 11, wherein

said second step is carried out in a state where a pressure in said reaction container is greater than or equal to 10 Torr.

13. (New) The semiconductor manufacturing apparatus as recited in claim 9, wherein

said silicon nitride film formed in said reaction container is removed without using plasma.

14. (New) The semiconductor manufacturing apparatus as recited in claim 9, wherein

said silicon nitride film formed in said reaction container is removed before a thickness of said silicon nitride film reaches 4,000 Å.

15. (New) The semiconductor manufacturing apparatus as recited in claim 9, wherein

said silicon nitride film formed in said reaction container is removed before a thickness of said silicon nitride film generates particles on said object.

16. (New) The semiconductor manufacturing apparatus as recited in claim 9, wherein said reaction container is made of quartz.

17. (New) The semiconductor manufacturing apparatus as recited in claim 9, wherein

said silicon nitride film formed in said reaction container is removed from said reaction container when a pressure in said reaction container is greater than or equal to 10 Torr.

18. (New) The semiconductor manufacturing apparatus as recited in claim 9, wherein

said silicon nitride film formed in said reaction container is removed from said reaction container when the thickness of said silicon nitride film reaches 3,000 Å.

19. (New) A reaction container cleaning method comprising:

flowing NF_3 gas into the reaction container; and

removing, without using plasma, a silicon nitride film formed in the reaction container.

20. (New) The reaction container cleaning method as recited in claim 19, wherein

said silicon nitride film is removed before a thickness of said silicon nitride film reaches 4,000 Å.

21. (New) The reaction container cleaning method as recited in claim 19, wherein

a pressure in the reaction container is greater than or equal to 10 Torr.